

**BEVERAGE CONTAINER**

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**CROSS-REFERENCE TO RELATED APPLICATIONS**

10 This application claims the benefit of the filing date of United States  
provisional patent application Serial Number 60/385,289 filed June 3, 2002, and  
regular patent application Serial Number 10/453,910 filed June 3, 2003.

This invention relates in general to containers and more particularly to  
disposable carafes that hold multiple servings of a beverage.

15 Consumers have a wide variety of choice of brewed coffee and tea. Coffee  
shops, convenience stores and even grocery stores offer many choices of brewed  
coffee. A customer who wants to bring one or more chosen, brewed beverages to  
another location needs a portable container to carry the coffee. Durable containers are  
expensive and many consumers prefer a less expensive, disposable container that  
20 would hold multiple cups of the beverage.

Others have attempted to meet this need by providing disposable containers  
that hold large quantities of coffee or tea in an inexpensive and disposable container.  
One such container is hex-shaped and normally rests on its side. See U. S. Patent No.  
6,209,781. It has an integral handle that adds to the complexity of its manufacture  
25 and assembly. When it is first filled, the container may be unstable given the hex-  
shaped sides. Another container is shown in U. S. Patent No. 5,715,992. It also has  
an integral handle. Both of the above containers provide discharge openings that are  
on the side of the container. In one or both cases the coffee in the container is  
normally held in by a cap on an internal flexible bag that is filled with liquid. The cap  
30 is below the level of the coffee in the filled container. As such, in their normal  
positions, the containers may leak. Other multisided (hexagonal) containers are found  
in U.S. Patent Nos. 5,050,775; 5,531,375; and 4,418,861.

In a departure from the cardboard, knock-down containers, still others have  
proposed a container with a rigid, central frame having a rectangular center section, a  
35 base, an integral spout and handle all made of plastic. See, for example 6,375,040.  
The frame supports a beverage bag that is enclosed by two pieces of insulating

cardboard. The container resembles a watering can. The bag is inserted into the frame and the bag is enclosed with the cardboard covers. The frame supports the weight of the filled beverage bag.

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## SUMMARY

The invention solves the problems of the prior art by making a container that is more stable, less likely to leak and pours from an upright position. In its broader aspects the invention provides a liquid container for holding a relatively large quantity  
10 of liquid. It is made from a single sheet of paperboard, cardboard or other suitable material and is operable to form from a collapsed, flat storage configuration to an upright configuration. The container has sidepanels and end panels for holding a beverage bag and for dispensing fluid from the bag.

The container is prepared from elongated paperboard that is divided into  
15 multiple panels and end flaps that extend from one or more of the panels to interlock and form end panels. The panels between the ends of the paperboard are attached to adjacent panels along their edges by an integral hinged portion of the paperboard to form a continuous multisided sided structure. A front panel has a first end flap with an opening for receiving a neck of a beverage bag. Two end panels overlap each  
20 other to surround a beverage bag. One of the end panels has a second end flap with an opening aligned with the opening the first end flap for receiving the neck of the beverage bag. The second end flap forms a top cover. The opening is in a central portion. Inside the container is a flexible bag with a narrow neck for receiving and discharging a beverage. The bag is normally collapsed and expands to receive and  
25 hold a beverage. Around the bag is an insulation sheath for keeping the beverage at a stable temperature or otherwise reducing heat transfer to or from the beverage.

The two end panels overlap and are fastened together. They have openings in their sidepanels and those opening are aligned with each other. The user may insert a finger or thumb into the opening to assist in pouring the beverage from the container.  
30 Two of the side panels have openings for receiving opposite ends of a handle. The container may have an odd or an even number of panels. Where they are an odd number, the preferred number is five, seven or nine. Because the two end panels overlap, the number of sides in the final structure will be one less than the total number of panels.

For an odd number of panels (and an even number of sidepanels) the invention provides a center panel that is shortest in length; the end panels are longest. The base edges of the panels lie in a line with one another. The top edges of the panels between the center panel and the end panels line along a line connecting the edge of the center panel to the edge of the end panel. The center and the intermediate panels have the same width and one end panel has a width smaller than the other end panel in order to allow one end panel to overlap the other.

One of the end panels has a top end flap with six sides and three ears disposed on the edges of the three sides for folding into the container. Most of the panels have bottom flaps disposed along their respective bottom edges for interlocking to form a bottom end panel. The panels adjacent to the center panel have top end flaps for cooperating with the center end flap to cover the top of end of the container. In the embodiments the bottom flaps interlock, overlap in whole or in part and are glued together, or overlap and are held in place by tongues from the side panels.

The invention provides a new multi-cup insulated coffee container. The invention is used to hold and keep warm multiple cups of coffee, including seventy or more fluid ounces.

The invention addresses a long felt need in the area of disposable, insulated coffee containers that hold large quantities of coffee. Such containers are highly desired by individuals who bring coffee to multiple coffee drinkers as well as by coffee retailers who require a disposable container for distributing large quantities of brewed coffee.

## **DRAWINGS**

Fig. 1 is a perspective view of the front of the container.

Fig. 2 is a vertical cross-sectional view of the invention.

Fig. 3 is a perspective view of the rear of the container.

Fig. 4 is a plan view of a closed container bottom.

Fig. 5 is a plan view of the unassembled paperboard piece for one embodiment of the invention.

Fig. 6 is a plan view of the unassembled paperboard piece for another embodiment of the invention.

Fig. 7 is a plan view of the unassembled paperboard piece for a third embodiment of the invention.

Fig. 8 is a plan view of half of the container bottom closure for the first and second embodiments of the invention.

Figs. 9 and 10 are plan views of the opposite halves of the top flaps.

Fig. 11 is a modification of the top cover for all of the embodiments.

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## DETAILED DESCRIPTION

The invention is a disposable container 10. Turning first to Fig. 2, there is shown a cross-sectional view of the invention. It includes an exterior paperboard container 10 that holds an insulating sleeve 12 that carries a collapsible bag 14 for holding a hot or cold beverage. Bag 14 may be made of any suitable material that can contain hot beverages. Preferred materials for the collapsible bag are nylon and metalized flexible materials. At one end the bag is a narrow neck 16 with a threaded connection for receiving a threaded cap 17. The other end has a folded gusset plate, not shown. An insulating sleeve 12 surrounds the bag and may be any suitable material including polystyrene or any open or closed cellular material. As an alternative, the insulating sleeve 12 could be replaced by loose insulation or other suitable material for reducing the transfer of heat from the liquids contained in the bag 14 to the ambient environment.

20 The container 10 is made of paperboard that has a brown or unfinished surface as well as a finished surface. The finished surface may have any suitable color. It is common that such paperboard have a white finished surface. Paperboard is chosen in lieu of corrugated materials because paperboard is relatively stiffer and can form bent panels and integral hinges. The entire structure 10 is formed from a single sheet of paperboard that is suitably scored, cut, bent and folded to provide the structure shown in the figures. The structure 10 includes seven panels 20-26 that form a six sided hexagonal structure. The two longest panels 23-24 overlap. The container has a top 30 that is integral with one of the longest panels. The container has a bottom 50 that includes multi-lobed interfering flaps 52, 62. Those flaps are mirror images of each other and are mounted on the bottom edges of the panels. Fig. 5 shows one embodiment of the invention in which flap 53 is scored with an internal hinge which bends along a line that corresponds with the center of the completed box. Fig. 6 shows another embodiment of the invention in which both flaps 53 and 63 are scored with internal hinges which bend along a line that corresponds with the center of the

completed box. Fig. 7 shows a third embodiment of the invention in which the bottom panels is cut as a single piece with multiple layers.

The panels that form the body of the container have different lengths to provide a sloped upper surface. All of the panels have their lower edges in a continuous line. Turning to Figs. 1 and 3, the shortest panel 20 faces the front of the device. Opposite front panel 20 are the back panels 23, 24. They are the longest panels. Panels 21 and 26 are on opposite sides of panel 20 and their respective top edges generally slope in an upward direction towards the rear. Panels 25 and 26 are integral, respectively, with panels 26 and 21. The upper edges of panels 25, 22 also slope up toward to top edge of the back panels 23, 24. Panels 25 and 22 are integral with the rear panels 23, 24, respectively. The rear panels 23, 24 overlap and are suitably fixed together by adhesive materials such as glue or any other suitable means including mechanical and chemical means for fixing one of the panels to the other. The rear panels 23, 24 have an aperture 18 that provides a thumb hole for carrying or manipulating the container.

Top flap 30 is integral with either the inside or the outside back panels 23, 24. The top flap 30 has a central hexagonal planar surface 31 that includes an opening 32 for the neck 16 of the bag 14. The top flap 30 has three integral lobes 44, 46 and 42 that are disposed on alternate sides of the hexagonal flap 31. Lobes 44 and 46 have integral hinges 45 that allow them to bend and to fit adjacent top ends of panels 25, 22, respectively. The lobes 44, 46 fold over retaining lobes 27 and 29 that are on the upper ends, respectively, of front slanted panels 26, 21. The retaining lobes 27, 29 cover the top of the bag 14. The lobes 44 and 46 fold into the interior of the container 10. Small cutouts 48, 49 along the integral hinge/score lines 45, 47 serve to capture and lock onto the lobes 27, 29 of panels 26, 21 when the flap 30 is closed. The front lobe 42 of the flap 31 fits behind front panel 20. Front panel 20 has an integral, hinged vertical collar 34 with an opening 37 between a pair of yokes 36, 38. The yokes 36, 38 press against the neck 16 of the bag 14 in order to secure the bag in the opening 32. The neck of the bag is smaller than the opening between the yokes. A retainer ring 80 on the neck is larger than the yoke opening and holds the neck in between the yokes.

The bottom of the container is formed by an opposing multi-lobe structure as shown in Figs. 5, 6 and 7, which represent three embodiments of the invention. Fig.8 shows one half of the bottom of the invention as it applies to the first and second embodiments. Turning first to multi-lobe 52 there is shown a central lobe 53 that is

integral with the front panel 20. A single lobe 54 is integral with front panel 21 and a double lobe structure 55, 57 is integral with front panel 26. The double lobe structure 55, 57 is scored and bends along an integral hinge line 56. Figs. 5 and 6 show the corresponding structures that are formed along the bottom of panels 22, 23 or 24, and 25. The lobe 57 is glued to opposite lobe 64 and likewise lobe 67 is glued to opposite lobe 54.

In the first embodiment the central lobe 53 is scored and bends along an integral hinge line 53b. This hinge line divides the lobe 53 into two unequal portions, 53a (larger) and 53c (smaller). The distance from the edge of the panel to the hinge line is a distance D1; the distance from the hinge line to the end of the flap is D2. D1 is greater than D2. Flap 63 is similarly divided into larger portion 63a and smaller portion 63c. It has a hinge line 63b. Portion 63a is a distance D1 deep and portion 63c is a distance D2 deep. The two flaps 53, 63 are aligned to fold along their fold lines 53b, 63b that are located across the center of the bottom of the completed box. Area 53c is glued or otherwise secured to lobe 63.

In the second embodiment D1 and D2 are the same. Lobe 63 is scored similarly to lobe 53 and bends along an integral hinge line 63b that is aligned with hinge line 53b such that when the container is formed, 53 and 63 overlap across the bottom of the completed box.

Turning to Fig. 7, the third embodiment uses two bottom flaps 70, 72 that generally correspond to the shape of a cross section of the container. Flap 72 has a tab 72.1 that will fold up against the inside wall of an end panel. Flap 72 has two tabs 74 that fold up against end panels and two other tabs 78 with slots. The slots receive and hold the tongue tabs 82, 85 that extend from end panels 23, 26. The third embodiment also has a double layered bottom with lobe 70 as the inner layer and lobe 72 as the outer layer. Lobe 72 has flaps 74 and 76 that tuck into the bottom of the completed container and slots 78 into which flaps 80 and 82 are further secured to the container.

With reference to Fig. 4, the container 10 is collapsed by bending the front panel toward the back panel. In particular, the three front side panels collapse onto the three back side panels. Bottom folds into the collapsing container volume by bending along the line B as shown in Fig. 4. The line B comprises creases in the end

lobes 65/67 and 55/57. The center portion of the line is the integral hinge line of lobe 53.

To manufacture the container 10, a single paperboard sheet is suitably scored, punched and bent to provide the apertures, lobes and integral hinges described above.

5 Then the rear panels 23, 24 are glued together. In the first and second embodiments, the bottom lobes 64/57 and 54/67 are also glued together. In the first embodiment, the hinged lobe 53a is glued to lobe 63. In the second embodiment either area 53a may be attached to lobe 63, or area 63a may be attached to lobe 53, or both areas may be attached. At that stage, the entire assembly may be stored in a flattened state until it is

10 ready for use. When required, the structure is manipulated to expand. In the first and second embodiments, lobes 53 and 63 are locked into place. In the third embodiment lobes 70 and 72 are folded into the bottom with lobe 72 as the outer layer. Flaps 74 and 76 are secured into the bottom of the container and flaps 80 and 82 are inserted into slots 78. A suitable insulating sleeve 12 is added inside of the container and a

15 collapsible bag 14 is placed inside the insulating sleeve 12. The top flap 30 is folded over the neck 16 of the bag 14. The collar 34 is also folded over the neck in order to form the final structure. The cap 17 on the bag may be removed from the bag may be filled with hot beverage such as coffee or hot tea or hot cocoa or any other suitable hot or even cold beverage. After filling the bag 14, cap 17 is screwed back onto the

20 neck 16 and the customer may take the disposable beverage container from the retail establishment.

With the invention the container must be tipped from its upright position in order to dispense fluid. The relative vertical orientation of the container coupled with its wide base, provides a stable, upright container. A user must not only open the cap

25 sealing the flexible bag, but must also tip the container. As such, at least two affirmative activities are required before the container dispenses fluid. This construction and arrangement overcomes disadvantages of prior art devices that rely upon gravity for dispensing fluid. Those devices place the discharge spout proximate the bottom of the container. With such devices fluid may be accidentally dispensed if

30 someone opens the cap. In contrast, the invention places the discharge spout far away from the bottom of the container and put it on the top sloping panel thereby minimizing the possibility of accidentally pouring hot coffee.

Fig. 11 shows a modification that may be made to all of the embodiments of the invention. There the top flap 30 has its opening 32 located in a central portion of

the flap and preferably substantially at the center of the flap. The top flap 30 has a pair of parallel opposite edges 42, 420 and a pair of inclined edges 440, 460 that converge toward the edge 42 and diverge toward the edge 420. The location of the opening 30 is chosen to enclose a locus 210 of intersection(s) of the three bisector lines 510, 520, 530 within the opening 30. Bisector line 510 extends from the middle of end flap 42 to the middle of the opposite edge 420. Bisector line 520 extends from the middle of edge 440 to the flap 44 and is substantially perpendicular to edge 440. Bisector 530 extends from the middle of the edge 460 to the opposite flap 46. The bisector lines cross one or more points inside the perimeter of the opening 30. In the preferred embodiment, the three lines intersect at one point. However, those who skilled in the art understand that minor changes may be made to the size of the top flap and its lobes and edges that would alter the intersection of three bisector lines. One line may intersect the other two lines at two different locations. The locus of intersections would define a triangle. Such a locus of intersections is deemed within the scope of the invention. So long as the opening 30 encloses the intersecting point or the locus of intersecting points of the three lines, the opening is substantially centered on the top flap 30 for the purposes of the invention. With the opening so centered, the container 10 is configured for fitting beneath a discharge spout of most popular commercial coffee makers, including and not limited to the Bunn S series coffee maker. By adapting the opening to be in middle or central portion of the top flap, an operator may place a seventy ounce container beneath the spout and perform an automatic coffee making operation in the same manner as performing a coffee making operation on a conventional glass carafe. Because the container 10 is centered beneath the coffee maker discharge spout, the container will receive the full seventy ounces of coffee normally made during one coffee making operation.

Having thus described the preferred embodiment of the invention, those skilled in the art will appreciate that other modifications, changes and variations may be made including omissions and additions of further structures without departing from the spirit and scope of the invention. For example, the invention shows a six-sided structure that includes seven panel pieces. Those skilled in the art will appreciate that other multisided structures may be made where the numbers of panel pieces exceed the number of sides by one or more. The panel can be made stronger by using heavier paperboard or by making a blank with more panels that overlap.



The dimensions, angles and radii of curvature shown in the figures is an example of a paperboard container suitable for holding seventy or more ounces of beverage. Those skilled in the art will understand that the dimensions, angle and radii may be altered to make larger or smaller containers.